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A NOTE ON THE ATLANTIC SPECIES OF THE
STARFISH GENUS *LINCKIA*

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The identities of those species of *Linckia* which have been reported from the Atlantic have been in a somewhat confused state for many years. The genus occurs in the Atlantic, Pacific, and Indian Oceans, in tropical and subtropical waters. Five species have been reported from the Atlantic in the area from about 35° north to 35° south on the western side, and from about 16° north to 16° south on the opposite side, from the intertidal zone to depths in excess of 750 m.

A careful search through the literature and an examination of specimens in the collections of the U. S. National Museum and the Museum of Comparative Zoology at Harvard, as well as of specimens kindly supplied by Jerald Halpern, Institute of Marine Sciences, University of Miami; Lawrence McCloskey, Duke University; and Maximo Cerrame-Vivas, University of Puerto Rico, has convinced me that not more than three species of *Linckia* have been collected in the Atlantic to date. A brief diagnosis of each follows.

Linckia guildingii Gray 1840

Ophidiaster ornithopus Müller and Troschel, 1842.

Scytaster stella Duchassaing, 1850.

Linckia ornithopus: Lütken, 1859.

Rays long, slender, well-rounded; usually five, sometimes four to seven; often unequal, due to autotomous division. Dorsal plates thick, numerous, somewhat convex, sometimes imbricate, covered with fine granules. Papulae 3-9, papular areas small. Marginal plates larger than dorsals, quadrangular, in two regular rows. Madreporite usually single, but may be double. Comet forms are common. Illustrated in Verrill, 1915, pl. XXVIII, Fig. 3.

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Distribution: Florida to Brazil, and West Africa (Sao Thomé). Shallow water.

Linckia bouvieri Perrier 1875

Linckia nodosa Verrill, 1915.

Rays long, slender, rounded, usually five. Many dorsal plates enlarged, tumid, covered with granules. Pores per papular area 10–18. Marginals in two somewhat irregular, sometimes discontinuous rows. Ocular plates not very prominent, covered with granules. Madreporite single. Illustrated in Verrill, 1915, pl. XXIX, Figs. 1a–1b (as *Linckia nodosa*).

Distribution: North Carolina to Florida, and Cape Verde Islands. 35–130 m.

Linckia nodosa Perrier 1875

Linckia formosa Mortensen, 1933.

Linckia bullisi Moore, 1960.

non *Linckia nodosa* Verrill, 1915.

Rays very slender, rounded, long, five. Many dorsal plates enlarged, tumid, covered with granules. Pores per papular area 2–8. Marginals in two rather regular rows, many with a small spine or tubercle in center of plate. Ocular plates prominent, raised, rounded, without granules. Madreporite single. Illustrated in Moore, 1960, Fig. 1 (as *Linckia bullisi*).

Distribution: Florida to Brazil, and St. Helena, 230–475 m.

Apparently Mortensen and Moore both overlooked Perrier's *Linckia nodosa* when describing their species. This, of course, was easy to do, since Perrier gave the locality for *L. nodosa* as "unknown." However, *L. formosa* and *L. bullisi* agree with *L. nodosa* in having very slender rays, a number of enlarged tumid plates, 2–8 pores per papular area, and a small spine or tubercle on many of the marginal plates.

Linckia guildingii is widespread in the Caribbean and tropical Atlantic, in shallow water. It is very common in reef areas. The other two species are much rarer and occur mainly in deeper water. *Linckia bouvieri* has been collected only from the Straits of Florida north to North Carolina and on the other side of the Atlantic in the Cape Verde Islands. *Linckia nodosa*, on the other hand, seems to occur only south of the Straits of Florida and at St. Helena, an interesting reiteration of the affinity of the St. Helena echinoderm fauna with the Antillean fauna.

Key to the Atlantic Species of *Linckia*

1. Large tumid plates occurring randomly on disc and arms 2
No tumid plates *Linckia guildingii*
2. Minute spines on some lateral plates; ocular plates without granules *Linckia nodosa*
No spines on lateral plates; ocular plates covered with granules *Linckia bouvieri*

LITERATURE CITED

- CLARK, H. L. 1941. Reports on the Scientific Results of the Atlantic Expeditions to the West Indies, under the joint auspices of the University of Havana and Harvard University. Mem. Soc. Cubana Hist. Nat. "Felipe Poey," vol. XV, no. 1, p. 50.
- DUCHASSAING, P. 1850. Animaux Radiés des Antilles. Paris.
- GRAY, J. E. 1840. A synopsis of the Genera and Species of the Class Hypostoma (*Asterias* Linnaeus). Ann. Mag. Nat. Hist., vol. vi, p. 284, London.
- LÜTKEN, C. F. 1859. Bidrag til Kundskab. om de ved Kysterne af Mellen-og Syd-Amerika levende Arter af Sostjerner. Vidensk. Medd. dansk. naturh. Foren. Kbn., 1858, pp. 25-96.
- MOORE, D. R. 1960. *Linckia bullisi*, a new Asteroid from the Northeast Coast of South America. Bull. Mar. Sci. Gulf and Carib., vol. 10, no. 4, pp. 414, 1 fig.
- MORTENSEN, TH. 1933. The Echinoderms of St. Helena (other than Crinoids). Vidensk. Medd. dansk. naturh. Foren. Kbn., Bd. 93, p. 430, pl. XXII, Figs. 2-4.
- MÜLLER, J. AND F. H. TROSCHEL. 1842. System der Asteriden, 3, Braunschweig, 4°, 134 pp., 12 pls.
- PERRIER, E. 1875. Revision de la collection de Stellerides du Museum d'Histoire Naturelle de Paris. Arch. Zoöl. Exper. et Génér., Tome IV, pp. 414-417.
- VERRILL, A. E. 1915. Report on the Starfishes of the West Indies, Florida, and Brazil. Bull. Lab. Nat. Hist., S. U. I., vol. VII, no. 1, p. 93, pls. XIII, Figs. 2-2a; XXIX, Figs. 1a-1b.